

REMARKS

Initially, the Office Action dated August 31, 2000, the Examiner has rejected claims 1-12, 14 and 16-20 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 4,648,036 (GALLANT), in view of U.S. Patent No. 4,646,229 (BOYLE).

By the response, Applicants have amended claims 1, 4, 7, 12, 14 and 19. Claims 1-12, 14 and 16-20 remain pending in the present application.

35 USC §103(a) Rejections

Claims 1-12, 14, and 16-20 have been rejected under 35 USC §103(a) as being unpatentable over GALLANT in view of BOYLE. Applicant's respectfully traverse this rejection.

Regarding claims 1, 4, 7, 12, 14 and 20, Applicants submit that neither Gallant nor Boyle taken alone or in any proper combination disclose, suggest or render obvious the limitation in the combination of each of these claims of, *inter alia*, a plurality of data areas where each of the data areas is loaded with data generated in time series during a certain time, and the plurality of data areas being managed by the time series. Applicants reassert the arguments made against the Examiner's rejections in the Amendment previously filed on June 27, 2000. In response to these arguments, the Examiner states that Applicants' claimed data areas loaded with data for a certain time "merely reads on the fact that data are added and deleted as needed and that memory is recoverable upon data deletion and reusable to store other data." The Examiner further states that "[c]learly, for memory management purpose, eventually all data areas are "loaded with data for a certain time"." Applicants do not understand the Examiner's reasoning, and can only

assume that the Examiner misunderstands the present invention and the cited references.

One object of the present invention is to provide a method and system which can eliminate conflict between the operation of time series data loading and data deletion with the operation of data retrieval in a database system, by effectively pointing to the succeeding segment (see Applicants' Specification pg. 14, lines 2-3 and pg. 4, lines 7-10). In the present invention, each of a plurality of data areas is loaded with data generated in time series during a certain time, where the plurality of data areas are managed by the time series. Further, data structures according to the present invention have bookmarked information areas provided at predetermined locations in the plurality of data areas. The bookmarked information is indicative of a time corresponding to a time series data piece loaded in each of the data areas, and state transition information indicative of a state of the data piece in each data area. State transition information is allowed to have a value indicative of an online state (in which the data area is permitted to be retrieved), and a value indicative of a loading state (in which loading of data in the data area has not yet been completed and, therefore, the data area is not permitted to be retrieved). Therefore, the present invention allows effective management of large amounts of data. The bookmark information indicative of a time corresponding to a time series data piece is related to actual time information (see Fig. 6, 22) and has nothing to do with the fact that data may be added and deleted as recited by the Examiner. Further, this limitation in the claims of the present invention have an entirely different purpose and meaning than "eventually all data areas are loaded with data for a

certain time” as asserted by the Examiner.

The Examiner further asserts that the limitation in the claims of the present application of the plurality of data areas being managed by time series “merely reads on the fact that data is time-stamped upon storage as shown by Boyle (see column 1, lines 57-66).” This assertion by the Examiner is a misinterpretation of the disclosure of Boyle. Col. 1, lines 64-66 in Boyle clearly state “queries into the database are time-stamped to limit the access to the proper time dependent version of the database”. Applicants submit that the Examiner has mischaracterized the reference to improperly apply it against the claims of the present application.

The Examiner further asserts that Applicants’ claimed bookmark information areas each having a pair of bookmarked information indicative of time and state of the data “merely reads on the fact that a code field and key fields are used to identify the state of the data.” The Examiner further states that it is well known in the art to keep of track of time ordered data items as shown by Boyle. However, the Examiner misunderstands Boyle in that as noted in the title and disclosure of Boyle, Boyle is related to time ordered databases, not time ordered data within a database as recited in the claims of the present invention. Applicants submit that it would not be obvious from the disclosure in Boyle, which relates to time stamping different versions of a database, to have time stamped data as recited in the claims of the present invention.

Further, Applicants’ submit, as noted in Applicants’ previous response, that the combination of Gallant and Boyle fails to achieve the claimed invention.

GALLANT discloses a database system which uses code fields representing a first

value, second value or third value which determine whether there is no update transaction in progress, the data entry is to be entered into the database, or the data entry is to be deleted from the database respectively. This is not indicative of a time corresponding to a time series data piece as recited in the claims of the present application (e.g., see Applicants' Fig. 6, 22 "FEB., 1994"). BOYLE reflects a time stamp on different versions of a database. The combination of GALLANT and BOYLE results in databases with different time stamps where the contents of each database has code fields telling the status of particular data entries (i.e., there is no update transaction in progress, the data entry is to be entered into the database, or the data entry is to be deleted from the database). This combination does not result in a data structure containing a plurality of data areas where each of the data areas is loaded with data generated in time series during a certain time, or where the plurality of data areas are managed by the time series as recited in the claims of the present application. Nor is this limitation in the claims of the present application obvious from the disclosures of GALLANT and BOYLE taken alone or in any proper combination.

Regarding claims 2, 3, 5, 6, 8-11 and 16-19, Applicants submit that these claims are dependent on one of independent claims 1, 4, 7, 12 and 14 and, therefore, are patentable at least for the same reasons noted previously regarding these claims. Applicants submit that since the cited references fail to disclose or render obvious the limitations in the independent claims of the present invention, each dependent claim taken in combination with its independent claim is patentable over the cited references.

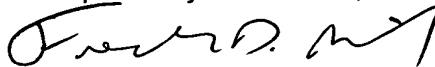
Accordingly, Applicant's submit that neither GALLANT nor BOYLE taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of the claims of the present application. Applicants respectfully request that these rejections be withdrawn and that claims 1-12, 14 and 16-20 be allowed.

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 1-12, 14 and 16-20 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

Any amendments to the claims which have been made in this Amendment and which have not been specifically noted to overcome a rejection based on the prior art should be considered to have been made for purposes unrelated to patentability and no estoppel should be deemed to attached thereto.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees and excess claim fees, to Deposit Account No. 01-2135 (referencing case No. 500.36133X00) and please credit any excess fees to such deposit account.

Respectfully submitted,



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